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J. C. COGSWELL, Dentist, has removed his office from 220 Kearney street to the Young Men's Christian Association Building, 232 Sutter street, near Kearny, San Francisco. The rooms are elegant, convenient and well ventilated. Friends and patrons are invited to call.

Babbitt Metal
In Quantities to Suit Purchasers
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SENTINEL OFFICE.

Arizona.

[Correspondence of The South.]

Never was philosophical prophecy more thoroughly fulfilled than that of the venerable Alexander Von Humboldt. Seventy-two years ago that great man stood upon one of the loftiest crests of the Apache Mountains, in Northern Mexico. A band of his faithful followers were around him. They had just come from the wonderful mines of the Veta Madre, in Guanaxuato, whose depths had then, within the memory of man, contributed eight hundred million ounces of pure silver to the riches of Old Spain. "Never will the world see such another mine," said the party, as they looked on the arid plains and the rugged rocks around them, and thought of the mighty mass of silver they had been privileged to see. What had Arizona and its fruitless wastes, which they were then journeying over, to compare in grandeur of wealth with this?

Then the spirit of prophecy came over the grand old philosopher. With form erect and outstretched arm, he turned his looks to the far west. His snowy locks waved in the breeze, and his flashing eyes kindled with the fire of inspiration as he swept the horizon from the hills of Santa Rita to the head of the great gulf into which the Colorado pours its waters. "See," said he, "you line of degraded heights, once mountainous loftier than those on which we stand; now abraded by time and the elements till their pinnacles have become plains and their crests have melted into valleys. Would you find streams of solid silver, sands yellow with golden grains and mines beside which those of Guanaxuato and Potosi are but toys of a child? Look in yonder hollows and depths, and there you will see them. Why do I say this, and what is my reason? Ask the hills we stand on, and they shall give you answer. Their granite and porphyry and limestone, unmixed with metal, homogeneous and compact; defying the assaults of Time. Theirs is the rugged and lasting independence of poverty. Not so with yonder range. Rich with the generous metals, its rocks have been a premium to destruction. Every drop of rain and every breath of wind, from the time of creation, have helped to crumble their primitive structure. Impregnated with wealth, they have fallen in every prey to the chemistry of nature; their earthly particles have drifted away in sand and dust. The noble metals, once component with them, rest in the deep chasms and lavins. The whole surface of the mineralized tract has been worn down till it is ten thousand feet nearer the mother springs whence the molten metal rises to fill the chasms and form the true fissure veins which are the delight of miners and the salvation of nations. Crops may fail and manufacturers decay; but a true fissure vein reaches to the foundations of the earth. If silver and gold can make men rich, then I tell you that there is more wealth concentrated in the hills and dales, in the rocks and ravines we now look upon than lies on the surface or is buried in the bosom of all the rest of the known world."

So spoke Von Humboldt three-quarters of a century ago, when Arizona belonged to Mexico and the vast regions west of the Mis-

sissippi were tenanted by solitude and the aborigines.

Since then, manifest destiny has led our commonwealth to absorb the best part of the old Spanish colonies; but although Arizona became ours twenty years ago, for the easy price of ten millions of dollars, we are only now beginning to perceive the truth of the words of the noble old German philosopher, and put his wisdom to a practical account. Five years ago Arizona yielded fifty thousand dollars worth of silver. Last year this was increased a hundred fold, and became five millions. This year the increase will be tremendous, and the great bulk of it comes—be it remarked—from the very line or zone of hills pointed out by Humboldt as he stood on the Apache mountains and indicated with his finger the mining districts now known as the Tombstone, the Globe, Richmond Basin, Silver King, and others on the same line, terminating with the Castle Dome.

The most conspicuous verification of Humboldt's theory of the immense wealth of Arizona, is found in the Richmond Basin through which runs a broad vein of quartz carrying a heavy percentage of silver. The Basin is a hollow of about a mile in area, lying on the southwestern slope of the Apache mountains, or rather forming part of the foothills of that range. A small stream runs through it. Pine and oak grow in abundance and there is good pasture. The nearest town is Globe City, 10 miles to the south, and connected with it by a rough road. The Southern Pacific R. R. approaches it nearest at Maricopa Wells distant 50 miles as the crow flies, but owing to canyons and ravines, giving a wagon at least 125 miles journey to get here, passing by the Silver King mine 25 miles distant. Several very rich seams or ledges of silver ore run through the Basin, the upper portions of the ore having become decomposed and leaving large and small masses of silver in a state of almost native purity, while the main veins of ore beneath carry an exceptionally high percentage of the precious metal. The Basin is in fact, a reservoir of silver combined as chlorides or in a free state which is the most favorable for milling purposes.

The mines located and working here are the McMorris and Cook, the Silver Nugget, the Richmond, the Hobbs, the Lola, the Midsouth and the Silver Plume. The first located was the Silver Nugget in February, 1875, by Mr. D. G. Chilson, and immediately afterwards Messrs. McMorris and Cook took the adjoining claim which they are now working. From this mine a very large amount of silver has been taken by the primitive means of pick and shovel, as neither milling or other mining machinery has yet found its way to the Basin. The owners are quiet, good-hearted, unpretentious men who prefer making their ten or twelve thousand a month out of their property in place of selling it, although they have bid and refused an offer of \$200,000.

With proper machinery this mine could undoubtedly turn out a hundred thousand ounces a month.

The Silver Nugget is of the same character, but is more fully

developed and presents a very large amount of high grade ore. Over one hundred thousand ounces were taken out by Mr. Chilson during the removal of the superficial detritus, and the average value of the ore exposed is about one hundred and fifty ounces to the ton. The mine has just been stocked in this city at a million dollars, with Gen. Sickles and Hon. Geo. S. Boutwell, ex-Secretary of the U. S. T., as President and Vice-President. The development of this mine will be of incalculable value to the District.

The Lola adjoins the Silver Nugget and is a section of the same magnificent vein. The explorations made show the same remarkable richness and size of ore body. It will probably be marketed for a million dollars and will yield a large return on that capital.

The Richmond comes next. It was located by Messrs. John Alvany and Dick Dickey, who were previously employed as packers, i. e. conveyers of stores packed on mules to the Government military posts. It was sold by them to Messrs. Risbridger and Campbell, the first from Canada, the other a Saint Louis man, who now hold it. A large amount of silver has been broken out by very small developments. The mine is about five feet wide with an average ore. Two shafts of 30 feet each are down but the main body of ore is yet untouched.

The workers and owners of the above properties form the population of this secluded mining camp, buried as it were in a distant valley, amidst the sublimest mountain scenery in the world. There are about forty or fifty in all, cut off from the rest of humanity for want of good roads and railway facilities. They are a remarkably happy and well-behaved community, a fact doubtless due to the presence of two or three ladies, wives of some of the proprietors. The family of Mr. Riggs especially, adds greatly to the many attractions of the Richmond camp. Mrs. Riggs is an excellent shot, and no one in the district can bring down a deer or a turkey at a longer range. Hospitality and good humor are the prevailing features of the settlement.

In this review we must not omit the McDowell claim, which has all the worth of its neighbors, much of the ore having given over two thousand ounces of silver. It is located on the same line as the others, and is owned by Mr. G. W. Norton. It was discovered by Mr. D. G. Chilson, and immediately afterwards Messrs. McDowell and Cook took the adjoining claim which they are now working. From this mine a very large amount of silver has been taken by the primitive means of pick and shovel, as neither milling or other mining machinery has yet found its way to the Basin. The owners are quiet, good-hearted, unpretentious men who prefer making their ten or twelve thousand a month out of their property in place of selling it, although they have bid and refused an offer of \$200,000.

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We have often been asked the name of large spider sometimes found in Arizona, but very abundant in the neighborhood of San Diego. Though very much resembling it must not be confounded with another, also frequent in that locality, the trap-door spider. We copy the following from Wood's *Natural History*: The great crab-spider belongs to the typical genus of this family, and is one of the formidable Araneidae that are said to prey upon young birds and other small vertebrates, instead of limiting themselves to the insects and similar beings which constitute the food of the generally of the spider race. All spiders are carnivorous, the dimensions of their prey varying with those of the destroyer and it is by no means an illogical supposition that a spider whose spread of limb equals that of a human hand, might suck the juices of some of the smaller and more helpless vertebrates.

In Madame Merian's well known work on the insects of Surinam, there is a careful and forcible sketch of one of these great spiders (*Mygale Avicularia*) engaged in preying upon a humming bird, which it seems to have taken out of its nest. She gives also a description of this spider, mentioning that it chiefly feeds upon ants, but that when they fail, it climbs the trees and catches the humming birds. For a time this account was believed, and the spider received the specific name of *Avicularia*, in consequence of its bird-catching propensities. After a while, however, several persons ventured to discredit the story, and at last both the account and the illustration were set down as simple fabrications of the imagination. Experiments were also tried, dead humming birds being put into the dens of these spiders, without any result, and the whole of Madame Merian's account was boldly denounced as fabulous.

Lately, however, the *Mygale* has been seen repeatedly to kill the young, not only of the humming bird, but of other vertebrates, and thus Madame Merian's reputation for veracity receives interest.

The *Mygale* is said to have a habit of dwelling in the clefts of hollow ravines, in volcanic tufa, or in decomposed lava. It often travels to a considerable distance, and conceals itself under leaves to surprise its prey, or it climbs on the branches of trees to surprise the *Colibris* (i. e. humming birds) and the *Certhia Florida* (a bird allied to our common tree creeper). It usually takes advantage of the night to attack enemies, and it is commonly on its return toward its burrows that one may meet it in the morning and catch it, when the dew, with which the plants are charged, slackens its walk.

The muscular force of the *Mygale* is very great, and it is particularly difficult to make it let go the objects which it has seized, even when their surface affords no purchase, either to the hooks with which its tarsi are armed, or to the claws which it employs to kill the birds and the anolis (a kind of tree lizard). The obstinacy and bitterness which it exhibits in combat cease only with its life. Some, pierced twenty times in the carapace, continued to assail their adversaries without showing a desire to escape.

On the Comstock, I believe, a majority of the persons using the term "miners' inch" mean a flow of water equal to 12 gallons per minute, or 100 cubic feet in the same time, and for convenience of reference I have arranged the following table, giving the flow of water for one "miners' inch," according to the head or fall, varying from four to ten feet to the center of the orifice. The coefficient of contraction is taken at 0.10, being an average value from experiments, with an opening of one square inch cut through a two-inch plank, the temperature of the water being at 70 degrees, one gallon equalling 231 cubic inches, and the weight of same at the above temperature is almost exactly 8.33 pounds:

Head to Center of Opening.	Discharge per Minute in		
	Cubic Ft.	Gallons	Lbs.
4 inches	1.159	8.669	71.96
5 inches	1.262	9.665	80.22
6 inches	1.417	10.599	87.98
7 inches	1.532	11.490	95.12
8 inches	1.637	12.245	101.63
9 inches	1.737	12.963	107.84
10 inches	1.830	13.689	113.62

For any other size of opening, either of height or length, the coefficient of contraction, due to friction, and with it the quantity of discharge, will vary; and hence, when "miners' inches" are spoken of, all the conditions affecting the discharge or measurement should be given, if anything more than a guess at the quantity involved is desirable.—W. R. Eckert, in *Territorial Enterprise*.

DAVID NEAHR.

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